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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,476	12/21/2001	Jimmy Kuo Chen	276440-21	9965

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EXAMINER

NGUYEN, DONGHAI D

ART UNIT	PAPER NUMBER
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3729

9

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No. 10/027,476	Applicant(s) CHEN, JIMMY KUO	
	Examiner Donghai D. Nguyen	Art Unit 3729	

-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Pri rity under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Response to Amendment

1. The proposed reply filed on January 26, 2004 has been entered as amendment A, Paper No. 8.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. “ones of said first subset of microelectronic structures are electrically connected to ones of said second subset of microelectronic structures” (claim 14, lines 8-9) or the space transformer (claim 15, line 3) and/or “the first pitch is tighter than the second pitch” (claim 15, line 10) since the specification on page 2, last paragraph discloses resilient microelectronic springs on the surface of an interposer but nowhere in the specification disclose the electronically connecting to subset of microelectronic structures. The spec and drawings do not disclose the space transformer or the first pitch on the first side and second pitch on a second side of non-metallic substrate.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, 10, 11, and 16, are rejected under 35 U.S.C. 102(b) as anticipated by US Patent 4,983,804 to Chan et al or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Chan et al in view of US Patent 61,150,186 to Chen et al.

Regarding claim 1, Chan et al disclose a method for heat treating a plurality of metallic microelectronic structures (14/16/17) attached to a non-metallic substrate (21), the method comprising the steps of: placing the non-metallic substrate (11/12/21) and the plurality of microelectronic structures (16/17/34/43 etc.) in an oscillating electromagnetic field (23/24), whereby the plurality of microelectronic structures are heated by the oscillating electromagnetic field and the non-metallic substrate is essentially not heated by the oscillating electromagnetic field (Col. 2, lines 46-48); maintaining the non-metallic substrate and the plurality of microelectronic structures in the oscillating electromagnetic field until each of the plurality of microelectronic structures obtains a defined heat-treatment temperature substantially greater than an ambient temperature (col. 2, lines 65-68); removing the non-metallic substrate and the plurality of microelectronic structures from the oscillating electromagnetic field and cooling the plurality of microelectronic structures to the ambient temperature (Note Chan et al inherently disclose these two steps when he finishes applying the electromagnetic field) and thereby improves a mechanical operating property of the plurality of microelectronic structures

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(inherently, since Chan et al's method having the exact steps and structures as claimed therefor the same result is expected).

To the extending that Applicant disagrees that the plurality of structures are microelectronic. Since Chan et al disclose the plurality of structures are metallic microelectronic structures (204) attached to the non-metallic substrate (202) and the steps heat treating the microelectronic structure for improving the mechanical operating property of the plurality of microelectronic structures (Chan's Abstract) except the exact steps using oscillating electromagnetic field for heat treating the microelectronic structures; however Chen et al disclose al the steps of placing and heating the non-metallic substrate in an oscillating electromagnetic field until each of the plurality of microelectronic structures obtains a defined heat treatment; removing the microelectronic structures from the electromagnetic field and cooling them for localized heat treatment the specific area (Col. 2, lines 46-48). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen et al to have the steps of placing and maintaining heat treatment the microelectronic structures in the oscillating electromagnetic field removing the microelectronic structure from the oscillating electromagnetic field; and cooling the microelectronic structure to as taught by Chan et al for a localized heat-treating microelectronic structures.

Regarding claims 2 and 3 see Chan et al's Col. 3, lines 3-11.

Regarding claims 4 and 10-11, Chan et al disclose tuning the oscillating electromagnetic field to selectively heat the ferromagnetic material (See Graphs 5-8).

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Regarding claims 5 and 6, Chan et al's Fig. 3 shows the range of temperature depends on the composite of the ferromagnetic material, therefore, it capable of obtaining the temperature greater than 800 °C and 1300 °C.

Regarding claim 7, Chan et al's Figs. 2-3 show generating the oscillating electromagnetic field between a pair of parallel plates (23/24).

Claim 16 also met as set forth above in claim 1.

6. Claims 8 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al or Chan et al in view of US Patent 61,150,186 to Chen et al.

It would have been an obvious matter of design choice for generating the oscillating electromagnetic field by using a hairpin coil or a coil comprised of a copper tube formed into a coil shape, since Applicant has not disclosed that the claimed specifics device for generating the oscillating electromagnetic field by using a hairpin coil or a coil comprised of a copper tube formed into a coil shape, solves any stated problem or is used for any particular purpose and it appears that the invention would perform well with the device (23/24) that generating the oscillating electromagnetic field of Chan et al.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al in view of Chen et al further in view of US Patent 5,340,537 to Barrett.

Chan et al as modified do not disclose measuring a temperature of the plurality of microelectronic structures by applying a heat-indicating paint to the plurality of microelectronic structures prior to the maintaining step. Barrett teaches the step of applying a heat-indicating

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paint to the plurality of microelectronic structures for measuring a temperature (col. 3, lines 9-17). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Chan et al to apply a heat-indicating paint to the plurality of microelectronic structures as taught by Barrett for measuring temperature.

8. Claims 14 and 15, as best as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al in view of Chen et al further in view of US Patent 5,476,211 to Khandros.

Chan et al as modified disclose the claimed invention of heat treating electronic structure, except the specific structures of the microelectronic as claimed in claims 14 and 15; however, Khandros' Figs. 20 and 21 discloses all the claimed limitations of claims 14 and 15 for electrically interconnecting between two substrates of surfaces of substrate (col. 15, lines 65-66 and Col. 16, lines 8-16). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Chan et al to include all the claimed limitations of claims 14 and 15 as taught by Khandros for interconnecting between two substrates of surfaces of substrate.

Response to Arguments

9. Applicant's arguments with respect to claims 1-12 and 14-16 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that Chan et al do not teach or suggest heat-treating microelectronic structures to improve a mechanical operating property of the structures. The Examiner disagrees

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since Chan et al teach the step of heat treatment, “inducing heat on” electronic components, “microelectronic structures” by oscillating electromagnetic field (Figs. 1-3) and Chen et al disclose that heat treating the microelectronic component to provide improve mechanical properties, “strength, resilient, stress relief, etc” of the microelectronic structures (Chen’s Abstract). Therefor the arguments are moot in view of the rejections.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (703) 305-7859. The examiner can normally be reached on Monday-Friday (9:00-6:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN



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